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<h2>Part I: General Overview of Business</h2> <p>Rockwell Collins designs, produces, and supports electronic communications, avionics, and inflight entertainment systems for commercial, military, and government customers worldwide. RC brand aircraft electronics are installed on nearly every airline in the world and outside of it, as the communications equipment for the Apollo, Gemini, and Mercury missions were designed and manufactured by Collins Radio Company.</p>	<h2>Part II: Job Specifics</h2> <p>Cleanrooms are laboratory settings specifically designed to remove all particulate matter from the circulating air. They have specific classes, with two different governing bodies, Federal Standard 209E and ISO 14644-1. Both of these governing bodies require monitoring of the particle counts in the air and air pressure difference from inside the room to outside.</p>
<h2>Part III: Introduce the Problem</h2> <p>Rockwell Collins wants to build a cleanroom to test their new products. They have 2,500 sq ft that needs to be designed.</p> <p>Assuming nothing is in the room, you need to design, build, and track the climate of the cleanroom and answer the following questions:</p> <ul style="list-style-type: none"><li>• What are somethings that are not particulate matter that need to be tracked because they could affect the particle count?</li><li>• Who is going to be working in the cleanroom and what matters to them?</li><li>• What health concerns are there for people who work inside a cleanroom?</li></ul>	<h2>Part IV: Background</h2> <p>Students will need to understand pressure differences and how they affect the climate on each side of the differential.</p> <p>For health concerns, students will need to research what happens in humid, warm, environments (bacterial growth).</p> <p>We will need to research how to build a cleanroom and what the best materials are to go into different types of cleanrooms are. What will be the best standard to follow?</p> <p>We will also need to have a lot of work with GAFE and how all the apps work together.</p>
<h2>Part V: Business Solution</h2> <p>RC has built this cleanroom in 2008, where my project was designing and building the program to track the climate data.</p> <p>We used google drive to link a google form to a spreadsheet that collected the data. From that spreadsheet, a climate data dashboard was updated automatically, accessible online for all stakeholders to see.</p> <p>This fulfilled the obligation of tracking and reporting data for certification as well.</p>	<h2>Part VI: Student Solutions</h2> <p>Students will find the two main types of cleanrooms, hardwall and softwall. Both of which would be acceptable for this use.</p> <p>An introduction to google forms and sheets will also need to happen so students can collect and track information.</p>
	<h2>Part VII: Standards Covered</h2> <p>Lesson planning: Students will gain a direct and practical application of:</p> <div><div><ul style="list-style-type: none"><li>• 21.9-12.TL.1</li><li>• 21.9-12.TL.2</li><li>• 21.9-12.TL.3</li><li>• 21.9-12.TL.4</li><li>• HS-ETS1-2</li><li>• HS-ETS1-4</li></ul></div><div><ul style="list-style-type: none"><li>• HS-ESS2-4</li><li>• HS-ESS3-2</li><li>• HS-ESS3-4</li><li>• HS-ESS3-6</li></ul></div><div><ul style="list-style-type: none"><li>• Systems and Systems Models</li><li>• Energy and Matter</li><li>• Structure and Function</li><li>• Stability and Change</li><li>• Analyzing and Interpreting Data</li><li>• Designing Solutions</li><li>• Obtaining, Evaluating, and Communicating Information</li></ul></div></div>